

Claims:

1. A nucleic acid comprising SEQ ID NO: 1 or a fragment or variant thereof.

2. The nucleic acid of Claim 1, which comprises nucleotides 430 to 1461 of SEQ ID NO: 1.

3. The nucleic acid of Claim 1, which comprises nucleotides 1756 to 4808 of SEQ ID NO: 1.

4. The nucleic acid of Claim 1, which encodes a polypeptide comprising amino acid residues 50 to 393 of SEQ ID NO: 2, or a variant of said nucleic acid.

5. The nucleic acid of Claim 4, which encodes a variant of the amino acid sequence of SEQ ID NO: 2, wherein said variant comprises at least one substitution, deletion, insertion, addition, or inversion of an amino acid residue or residues of SEQ ID NO: 2, and wherein said variant when in combination with a polypeptide comprising residues 55 to 1113 of the amino acid sequence of SEQ ID NO: 3 constitutes a complex having carbamoyl-phosphate synthetase activity.

6. The nucleic acid of Claim 4, which hybridizes under stringent conditions with a nucleic acid encoding a polypeptide comprising residues 50 to 393 of the amino acid sequence of SEQ ID NO: 2, and which encodes a polypeptide that when in combination with a polypeptide comprising residues 55 to 1113 of SEQ ID NO: 3 constitutes a complex having carbamoyl-phosphate synthetase activity.

7. A nucleic acid of Claim 2 which encodes a polypeptide comprising residues 55 to 1113 of the amino acid sequence of SEQ ID NO: 3, or a variant of said nucleic acid.

8. The nucleic acid of Claim 7, which encodes a variant of the amino acid sequence of SEQ ID NO: 3, wherein said variant comprises at least one substitution, deletion, insertion, addition, or inversion of an amino acid residue or residues of SEQ ID NO: 3, and wherein said variant when in combination with a polypeptide comprising residues 50 to 393 of SEQ ID NO: 2 constitutes a complex having carbamoyl-phosphate synthetase activity.

9. The nucleic acid of Claim 7, which hybridizes under stringent conditions with a nucleic acid encoding a polypeptide comprising residues 55 to 1113 of the amino acid sequence of SEQ ID NO: 3, and

which encodes a polypeptide that when in combination with a polypeptide comprising residues 50-393 of the amino acid sequence of SEQ ID NO: 2 constitutes a complex having carbamoyl-phosphate synthetase activity.

10. The nucleic acid of Claim 1 comprising:

a nucleic acid which encodes residues 50 to 393 of the amino acid sequence of SEQ ID NO: 2, or a variant thereof; and

a nucleic acid which encodes a polypeptide comprising residues 55 to 1113 of the amino acid sequence of SEQ ID NO: 3, or a variant thereof.

11. A vector comprising the nucleic acid sequence of Claim 1.

12. A host cell comprising the nucleic acid sequence of Claim 1.

13. The host cell of Claim 12, wherein said cell is a coryneform bacterium.

14. The host cell of Claim 12, wherein said cell has enhanced intracellular carbamoyl-phosphate synthetase activity and/or L-arginine productivity compared to an untransformed host cell.

15. The host cell according to claim 14, wherein the enhanced intracellular carbamoyl-phosphate synthetase activity is obtained by increasing the copy number or

expression of the DNA encoding a carbamoyl-phosphate synthetase polypeptide.

16. A method for producing L-arginine, comprising:

culturing a host cell according to Claim 12 in a medium and under conditions suitable
for production of L-arginine, and

5 collecting the L-arginine from the medium.

17. The method of Claim 16, wherein said host cell is a coryneform bacteria.

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